

LUKAS, NACE, GUTIERREZ & SACHS, LLP

8300 GREENSBORO DRIVE, SUITE 1200
MCLEAN, VIRGINIA 22102
703 584 8678 • 703 584 8696 FAX

WWW.FCCLAW.COM

RUSSELL D. LUKAS
DAVID L. NACE
THOMAS GUTIERREZ*
ELIZABETH R. SACHS*
DAVID A. LAFURIA
PAMELA L. GIST
TODD SLAMOWITZ*
TODD B. LANTOR*
STEVEN M. CHERNOFF*
KATHERINE PATSAS NEVITT*

CONSULTING ENGINEERS
ALI KUZEHKANANI
LEILA REZANAVAZ
—
OF COUNSEL
GEORGE L. LYON, JR.
LEONARD S. KOLSKY*
JOHN CIMKO*
J. K. HAGE III*
JOHN J. MCAVOY*
HON. GERALD S. MCGOWAN*
TAMARA DAVIS BROWN*

*NOT ADMITTED IN VA

Writer's Direct Dial:
(202) 828-9470
tgutierrez@fcclaw.com

June 17, 2010

Via Electronic Filing

Marlene H. Dortch, Secretary
Federal Communications Commission
445 12th Street, SW
Washington, DC 20554

**Re: Docket No. WT Docket 07-293
IB Docket 95-91
General Docket 90-357**

Dear Ms. Dortch:

Horizon Wi-Com, L.L.C. ("Horizon"), by counsel, writes to address the matter of coordination as addressed in the Commission's decision released on May 20, 2010 ("Order") in the referenced proceeding. Specifically, for the reasons set forth below, Horizon urges that required coordination not be required to be consistent with the portions of the ITU R 1459 standard that while relevant to co channel satellite operation are not appropriate for coordination of terrestrial radiators.

Introduction

As an Initial matter, Horizon applauds the Commission for requiring that WCS licensees coordinate with potentially impacted licensees in the spectrally adjacent AFTRCC service. Such coordination will service the public interest, by enhancing the quality of communication to be provided over WCS while protecting the adjacent services. This improved communication will further serve the public interest by causing WCS services to be more enticing to prospective investors.

Horizon submits that the Commission handled well the issue of coordination in the text of its recent decision. Specifically, in paras 183-184, the Commission determined not to mandate compliance with ITU R 1459. Notwithstanding that, in Section 27.73(a) of the rules promulgated with the Order, there is what appears to be an unintended reference to ITU R 1459. For the reasons set forth below, any such requirement would frustrate both the public interest and WCS licensees generally.

Discussion

From the opening page, ITU R 1459 sets up conditions that give AMT entities the opportunity to overprotect their facilities. Since that document was written during WARC 95, it notes:

that in accordance with the decision by WRC-95, in the United States of America, telemetry stations in the aeronautical mobile service have a primary status in the 2 300-2 390 MHz band and have priority over other mobile services.

Clearly this was written prior to the 1997 spectrum auctions that established SDARS and WCS within this protected spectrum. Nevertheless, a strict constructionist reading of the document by AMT could lead to their assertion that they are still the primary controller of this spectrum and demand unreasonable protection of their facilities.

ITU R 1459 was written primarily to coordinate the co channel sharing of AMT frequencies with satellite services to allow control of energy "leakage" over international borders so the amount of energy from a foreign satellite serving a foreign audience was limited to a level that did not impact the operation of AMT service in a different country. The levels calculated are based upon worst case conditions for the AMT operator (AMT service working at maximum range, at minimum power, at maximum modulation, and during the deepest fading condition expected).

The resulting analysis notes that the allowable noise floor increase due to the interfering terrestrial service must be kept 8 dB below the Gaussian noise floor of the channel:

The impact on the telemetry link measured in terms of the decrease in usable range, R, for a given P, as a function of (I/N) can be determined from equation (7), since $R^2 \propto 1/(N + I)$ for a fixed transmitter power. The decreased usable range as a function of (I/N) is shown in Fig. 4. The impact on telemetry link design becomes severe for (I/N) values greater than one (0 dB) because the link must be designed to overcome interference rather than internal noise. The maximum practical value is considered to be approximately 0.5 (3 dB) with smaller values desired.

Based on the factors given in § 2.2.3, the following aggregate allowances appear appropriate for this case. The total noise is the sum of internal noise, NI, plus interference from satellites, IS, plus interference from terrestrial sources, IT. The aggregate permissible interference from satellites and terrestrial sources are:

$$IS \leq 0.25 (NI \leq IT) \quad (11)$$

$$IT \leq 0.10 (NI \leq IS) \quad (12)$$

From this, the aggregate allowable I/N from satellites is 0.3846 or -4.15 dB, and from terrestrial sources is 0.1538 or -8.13 dB.

Read literally, terrestrial sources would need to keep their energy controlled to a level of -8.13 dB below gaussian noise in order to meet the coordination obligations under this document. However there is no correlating requirement that this is energy within the main beam of the AMT antenna, since the effect of Interference is calculated based upon a 41 dB antenna gain. Not all AMT facilities use antennas this large, and the beamwidth of the antennas is very small. Therefore it is critical to assess possible interference and coordination based upon the actual operating conditions of the AMY facility and the angular distribution of WCS sites in order to effectively coordinate WCS transmitters.

The coordination levels required under ITU R 1459 appear to be based upon worst case conditions, and it is unlikely that the AMT facilities are operating near their sensitivity limits (this is a safety of life issue, so the testers should be building in significant margins). As a result, realistic coordination should be based upon actual use characteristics of the AMT facility. ITU R 1459 notes that the normal airspace used for AMT operations is extremely limited:

Testing of airborne vehicles is often restricted to areas over water or uninhabited land in order to preclude danger to life or property in case of catastrophic failure of the vehicle being tested, thereby limiting the azimuth angles for these tests. There are also minimum limits on the azimuth and elevation pointing angle variations of the telemetry receiving antenna that are defined by the minimum air space. The maximum air space for a telemetry receiving site is defined as a cylinder with a horizontal radius of 320 km around the site, with the lower bound determined by visibility and the upper bound determined by an altitude of 20 km. The minimum air space for a particular mission is defined as a vertical cylinder with a radius of 20 km within the maximum air space with the same lower and upper bounds as for the maximum air space.

Conclusion

For all of the foregoing reasons, Horizon asks the Commission to confirm that its statements in the text of Order were accurate; that reference to ITU R 1459 in the attached rules was inadvertent; and that WCS need not coordinate with AFTRCC in any way that requires compliance with ITU R 1459.

Respectfully submitted,

By: /s/ Thomas Gutierrez
Counsel for Horizon Wi-Com, L.L.C.

cc: R. Arsenault, Esq.
P. Sinderbrand, Esq.